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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

MANCHO, RONNIE M

ART UNIT

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3664

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/713,789	Applicant(s) BUCHANAN ET AL.	
	Examiner RONNIE MANCHO	Art Unit 3664	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 October 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 24-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 24-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 24-31 are rejected under 35 U.S.C. 102(b) as being anticipated Sawamoto EP 0890470).

Regarding claim 24, Swamoto (abstract; col. 7, col. 9, etc) discloses a method of sensing targets from a host vehicle, comprising:

capturing images in the host vehicle and detecting lane boundaries in the captured images (col. 6, lines 10, etc; lines 33, etc);

estimating a projected path for the host vehicle (col. 7, lines 28 to 54);

detecting, on the host vehicle, the position and distance from the host vehicle of a target vehicle located on the road ahead of the host vehicle (figs. 3&4; col. 5, lines 50-54);

determining a target lane (abstract, fig. 3&4) in which the host vehicle will be located when it has travelled along the projected path by the distance from the host vehicle to the target vehicle (col. 7, lines 39, etc; col. 9, lines 48, etc); and

comparing the position of the target vehicle with the position of the target lane to provide a processed estimate of the actual position of the target vehicle (col. 7, lines 38, etc; col. 9, lines 43, etc).

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In the prior art (col. 9, lines 46 to col. 10, line 11) the processor 62 clearly predicts the position of the host vehicle in a future path. The processor 62 predicts" the future path of the host vehicle relative to a target vehicle when the host vehicle has traveled a distance between the host vehicle and the target vehicle (see particularly col. 9, line 51 and col. 10, lines 5-11).

Regarding claim 25, Swamoto (abstract; col. 7, col. 9, etc) discloses the method of Claim 1 in which the processed estimate comprises an indicator of whether or not the target vehicle is in the same lane that the host vehicle is projected to be in when the host vehicle has travelled along the projected path by the distance to the target vehicle (col. 2, lines 47-57; col. 9, lines 16-53; col. 10, lines 5-24).

Regarding claim 26, Swamoto (abstract; col. 7, col. 9, etc) discloses the method of Claim 1, in which the step of capturing images comprises capturing a plurality of two-dimensional images of an area of road ahead of the host vehicle using a video camera (col. 2, lines 47-57; col. 9, lines 16-53; col. 10, lines 5-24).

Regarding claim 27, Swamoto (abstract; col. 7, col. 9, etc) discloses the method of Claim 1 in which the step of detecting lane boundaries in the captured images comprises filtering the images to identify artefacts in the images corresponding to at least one of the right hand edge of a road, the left hand edge of the road, lane markings defining lanes in the road, the radius of curvature of the lanes and the road, and the heading angles of the host vehicle relative to the road and lanes (col. 2, lines 47-57; col. 9, lines 16-53; col. 10, lines 5-24).

Regarding claim 28, Swamoto (abstract; col. 7, col. 9, etc) discloses the method of Claim 4 in which the step of detecting lane boundaries comprises applying an edge detection algorithm

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to the images to detect lines or curves that correspond to lane boundaries (col. 2, lines 47-57; col. 9, lines 16-53; col. 10, lines 5-24).

Regarding claim 29, Swamoto (abstract; col. 7, col. 9, etc) discloses the method of claim 5, in which the step of detecting lane boundaries comprises performing a tracking algorithm which employs a recursive least squares technique to identify the path of lanes in the images (col. 2, lines 47-57; col. 9, lines 16-53; col. 10, lines 5-24).

Regarding claim 30, Swamoto (abstract; col. 7, col. 9, etc) discloses the method of claim 1, in which the step of determining the target lane comprises projecting the path estimated by the vehicle path estimation means by the distance to the target vehicle and comparing the part projected to that distance with lane boundary information at that distance (col. 2, lines 47-57; col. 9, lines 16-53; col. 10, lines 5-24).

Regarding claim 31, Swamoto (abstract; col. 7, col. 9, etc) discloses the method of claim 1, in which the step of estimating the projected path comprises projecting a path based upon the heading of the host vehicle (col. 2, lines 47-57; col. 9, lines 16-53; col. 10, lines 5-24).

Response to Arguments

3. Applicant's arguments filed 10/11/10 have been fully considered but they are not persuasive.

Applicant argues that the prior art does not anticipate the claims. The examiner respectfully disagrees. The prior art discloses sensing targets from a host vehicle, comprising:

capturing images in the host vehicle and detecting lane boundaries in the captured images (col. 6, lines 10, etc; lines 33, etc);

estimating a projected path for the host vehicle (col. 7, lines 28 to 54);

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detecting, on the host vehicle, the position and distance from the host vehicle of a target vehicle located on the road ahead of the host vehicle (figs. 3&4; col. 5, lines 50-54);

determining a target lane (abstract, fig. 3&4) in which the host vehicle will be located when it has travelled along the projected path by the distance from the host vehicle to the target vehicle (col. 7, lines 39, etc; col. 9, lines 48, etc); and

comparing the position of the target vehicle with the position of the target lane to provide a processed estimate of the actual position of the target vehicle (col. 7, lines 38, etc; col. 9, lines 43, etc).

In the prior art (col. 9, lines 46 to col. 10, line 11) the processor 62 clearly predicts the position of the host vehicle in a future path. The processor 62 predicts" the future path of the host vehicle relative to a target vehicle when the host vehicle has traveled a distance between the host vehicle and the target vehicle (see particularly col. 9, line 51 and col. 10, lines 5-11).

As further noted, the positions of host vehicle and the target vehicle in the predicted lane are plotted in successive times t_1 , t_2 , t_3 , etc indicating a progression of the vehicles as they travel into the future in the predicted lane. The host vehicle is shown to maintain a distance behind a target vehicle as both vehicles travel in the predicted lanes. As the host vehicle moves from its current position toward a target vehicle, it is noted that the target vehicle also moves ahead of the host vehicle to another position ahead of the host vehicle. The host vehicle then covers the distance of separation between the host vehicle and the target vehicle after the host vehicle travels to a position previously occupied by the target vehicle. The host vehicle tracks the target vehicle and keeps a historical map of positions occupied by the target vehicle in the

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predicted lane of travel thus estimating or predicting the future travel path of the target vehicle (see col. 9, line 51 and col. 10, lines 5-11).

The applicants are repeating arguments already addressed in the previous office actions. The responses in the last action are incorporated below. After the host vehicle of the prior art goes past the distance it maintains the same lane it is in. Therefore the prior has predicted a target lane in which the host vehicle will be located when it has traveled along the projected path by a distance to the target object. It is believed that the applicant has erred in the interpretation of the prior art.

Applicant further argues that the prior art does not predict the target lane. The examiner believes the applicant has erred in the interpretation of the prior art. It is noted that the prior art predicts in the same manner as disclosed in the applicants specification. Applicant uses the word "predict" in the disclosure, but does not particularly disclose how prediction is done. On the other hand, as known in the art, the phrase -- path estimation --, --projected path -- are examples of prediction that the applicant recites in the background section referring to the prior art. Applicant admits that the prior Sawamoto calculates a future path, see applicant's remarks, page 9, last paragraph. It is not clear what applicant is really arguing here when applicant admits that the prior estimates a path. The applicant further recites that the prior assumes that "the host vehicle WILL TRAVEL in this new lane". See applicant's argument page 11 last two sections. These are all future tenses contrary to applicant's argument that the tenses in Sawamoto are in present tense.

It is believed that the prior art still reads on the claims. The rejections are believed to be proper, thus they stand.

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Communication

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to RONNIE MANCHO whose telephone number is (571)272-6984. The examiner can normally be reached on Mon-Thurs: 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tran Khoi can be reached on 571-272-6919. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Ronnie Mancho
Examiner
Art Unit 3664

/Ronnie Mancho/
Examiner, Art Unit 3664